SDCC Rathcoole Housing Development

WFD Screening and Scoping Assessment

South Dublin County Council

October 2026

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Quality information

Prepared by	Checked by	Verified by	Approved by
Joshua Moore Principal Geomorphologist	Arved Schwendel Associate Geomorphologist	Neil Williams Technical Director	Richard O'Callaghan Project Director

Revision History

Revision	Revision date	Details	Authorised	Name	Position
0	06/10/2026	Draft	Y	ROC	Project Director

Distribution List

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0	1	South Dublin County Council

Prepared for:

South Dublin County Council (SDCC)

Prepared by:

AECOM Ireland Limited
4th Floor
One Burlington Plaza
Burlington Road
Dublin 4
D04 RH96
T +353-1-696-6220

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1. Introduction

1.1 Background and Aim

South Dublin County Council (hereafter referred to as the 'Applicant') is proposing a development comprising a residential scheme of 130 no. dwellings and 2 no. senior and 1 no. junior grass pitches on an application site measuring c.11.4ha. The application site lies to the south and southeast of Rathcoole Village, County Dublin. Rathcoole Village is located c.15km to the southwest of Dublin City Centre, c.13km northeast of Naas, County Kildare and c.13km to the north of Blessington, County Wicklow.

The aim of this WFD Compliance Assessment is to identify any potential risks and impacts that the Proposed Development could pose on the condition of the water environment, and to assess whether the Proposed Development is compliant with WFD regulations and objectives.

1.2 Study Area

For the purposes of this assessment, a Study Area extending 1 km from the Proposed Development boundary has been considered. This area was selected to identify water bodies that may be hydrologically connected to the Proposed Development and could potentially be affected by associated activities. Water bodies outside of this Study Area will be considered if there is a risk to upstream or downstream receptors. Professional judgement has been applied to define the extent of these features.

The Proposed Development is located in Rathcoole Village, County Dublin and lies within one (1) WFD river water body catchments:

- Camac_020 IE_EA_09C020250

The Proposed Development is hydrologically connected to the following three (3) upstream and downstream WFD river water body catchments:

- Camac_010 IE_EA_09C020100;
- Camac_030 IE_EA_09C020310; and,
- Camac_030 IE_EA_09C020500.

One (1) further WFD river water body catchment is located within the study area:

- Liffey_170 IE_EA_09L012100.

These river waterbodies lie over and therefore are hydrologically linked to two (2) WFD groundwater bodies.

- Kilcullen IE_EA_G_003
- Dublin IE_EA_G_008

No transitional or coastal WFD water bodies are located within the Study Area or are anticipated to be at risk indirectly as downstream receptors.

1.3 Water Framework Directive

The EU Water Framework Directive (WFD) (2000/60/EC) requires all Member States to protect and improve water quality in all waters so that they achieve good ecological status by 2015 or, at the latest, by 2027. It was given legal effect in Ireland by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003). It applies to rivers, canals, lakes, groundwater, and transitional coastal waters. Article 4 of the WFD states that Member States shall 'prevent deterioration of groundwater status and ensure a balance between abstraction and recharge of groundwater'

The Directive requires that management plans be prepared on a river basin basis and specifies a structured method for developing these plans. S.I. No. 77/2019- European Union Env Objectives (Surface Waters) (Amendments) Regulations 2019 (Commenced 30th July 2009) sets out objectives in terms of surface water status for ecological, biological, morphological and physico-chemical status. S.I. No. 366/2016 - European Union Environmental

Objectives (Groundwater) (Amendment) Regulations 2016 (Commenced January 2010) sets out objectives in terms of Ground water status for and physio-chemical threshold limits.

The WFD takes a holistic approach to sustainable management of the water environment by considering interactions between surface water, groundwater, and water-dependent ecosystems. Ecosystem conditions are evaluated according to interactions between classes of biological, chemical, physico-chemical and hydromorphological elements known as 'Quality Elements'.

Under the WFD, 'water bodies' are the basic management units, defined as all or part of a river system or aquifer. Water bodies form part of a larger 'river basin district' (RBD), for which 'River Basin Management Plans' (RBMPs) are used to summarise baseline conditions and set broad improvement objectives. RBMPs are produced every six years, in accordance with the river basin management planning cycle. The current RBMPs at the date of this assessment are the 2022-2027 Cycle 3 plans, published in 2024.

The WFD requires water bodies to be classified according to their current condition (i.e. the 'Status' or, in the case of heavily modified or artificial water bodies, the 'Potential') and to set a series of objectives for maintaining or improving conditions so that water bodies maintain or reach Good Status or Potential.

In Ireland, the Local Authority Waters Programme (LAWPRO) is a Local Authority (LA) shared service, responsible for coordinating the LAs response to The European Union Water Framework Directive statutory obligations on placed on Member States and Local Authorities. There are five local authority regional committees, known as Water and Environment Management Committees, LAWPRO supports each one; and they have responsibility for the co-ordinated delivery of measures at the regional and local level and to ensure a consistency of approach across the regions. The five regional committees are chaired at Chief Executive level, with active participation and technical advice from the Environmental Protection Agency (EPA).

In determining whether a development is compliant or non-compliant with the WFD objectives for a water body, the conservation objectives of any Protected Areas such as Special Areas of Conservation and adjacent WFD water bodies, where relevant, will be considered.

A high-level description of the Proposed Development is provided in Section 3.1.

2. Methodology

This section outlines the methodology used to screen potential effects on WFD water bodies during the construction and operational phases of the Proposed Development.

2.1 WFD Methodology

The following WFD compliance guidance is available which has been applied for this assessment:

- EU-level guidance document Water Framework Directive - Project assessment checklist tool, published by the Joint Assistance to Support Projects in European Regions (JASPERS, 2024).

There are no fixed methods for WFD assessment. The nature of the water environment and the breadth of the legislation mean that assessments are tailored to proposals on a case-by-case basis, however following the checklist tool.

A stepwise approach consisting of screening, scoping and impact assessment phases is generally followed in order to: (a) rationalise the levels of WFD assessment and impact mitigation that are required; and (b) verify that proposals comply with the requirements of the WFD. General guidance on the process is provided below.

2.1.1 Step One: Context and Screening

Screening identifies the area potentially impacted by a proposed development, and if proposed activities pose a risk to the water environment, and includes the following steps:

- Collate project information and details of design.

- Identify and record details (including current status and future objectives) of water bodies which could be affected (surface water and groundwater, including upstream and downstream waterbodies), and any EU protected areas in or adjacent to each water body.
- Review of desk based available data such as WFD information contained on https://www.catchments.ie/ and individual water body reports on EPA website.
- Ensure water bodies affected by discharges are considered.
- Identify measures in place in RBMP to ensure WFD objectives are met.
- Consider other projects which may affect the waterbodies.
- Assess whether a cause-and-effect mechanism exists.

It is used to identify if there are activities that do not require further consideration for WFD objectives, such as activities which have been ongoing since before the current RBMP cycle and which have thus formed part of the baseline.

If the project is modified to avoid effects on status (e.g. mitigation), then re-run Step One. If there are no potential causal mechanisms for a water body, the assessment is complete for that water body. If there may be causal mechanisms, or there is uncertainty, continue to Step Two for those water bodies.

2.1.2 Step Two: Scoping the Assessment

Scoping is used to identify any potential impacts of the proposed activities to specific WFD receptors and their quality elements. This involves review of WFD impact pathways, shortlisting which WFD water bodies and quality elements could or could not be affected by proposed activities, and collecting baseline information from the relevant RBMP on the status and objectives for each water body. This includes the following steps:

- For each water body where status may be affected, identify which elements may be affected, including related EU protected areas.
- Consider the following questions (for water bodies and EU protected areas):
  - Will the effect be temporary and not lead to deterioration?
  - Will the effect be insignificant?
  - Can it be concluded that there are no potential cumulative effects?

If the project is modified to avoid effects on status (e.g. mitigation), then re-run Step Two. If the answer to all three questions is yes, the assessment is complete for that water body. Otherwise, for example there is a potential effect on status, possible cumulative effects on status or uncertainty, continue to Step Three.

2.1.3 Step Three: Further Data Collection and Mitigation

Proposed mitigation activities relied upon to demonstrate compliance at any of the stages referred to above must be appropriately defined and sufficiently secured. Mitigation could be secured through planning or licence conditions, or other legally binding methods.

- Undertake new data collection or investigations, this may include, for example:
  - Detailed modelling or calculation of groundwater ingress rates at cuttings.
  - Additional data collection, especially if existing WFD monitoring data are distant from project effects.
- Review data and consider the following questions:
  - Could the project have an effect on WFD status element?
  - Could the project have an effect on water dependent features of EU protected area?
  - Are significant cumulative effects on status possible?

If the answer to all three questions is no, the assessment is complete for that water body. Also document any positive changes to WFD status elements or to RBMP objectives. Otherwise, consider potential mitigation measures. If, following mitigation, it is concluded that the project will not cause deterioration, confirm this with WFD competent authorities, and then the assessment is complete for this water body. If deterioration is possible, continue to Step Four.

2.1.4 Step Four: Article 4(7) Tests

If mitigation measures cannot prevent status being affected, Article 4(7) allows, via an exception, for projects to have a residual effect on status if: a new modification will directly or indirectly affect the status of the water body, or a surface water body currently at High status will deteriorate to Good status as a result of new sustainable human development activity, and all the following conditions are met:

- All practicable mitigation measures are in place.
- Modifications are set out in RBMP or subject to public consultation and will be reported in next RBMP.
- Modifications are demonstrated to be of overriding public interest.
- It can be demonstrated that there are no technically and financially feasible alternatives that are significantly better from an environmental perspective.

If these conditions are not met, the project cannot go ahead. If these conditions are met, then consider Article 4(8) and 4(9), which require both the following to be met:

- The Article 4(7) exemption does not permanently exclude or compromise the WFD objectives in other water bodies, and is consistent with other EC legislation.
- The 4(7) exemption guarantees at least the same level of protection as other EC legislation.

If Articles 4(7), 4(8) and 4(9) are met, this conclusion should be confirmed with WFD competent authorities, then it can be concluded that the project is WFD compliant. If Article 4(7), 4(8) and 4(9) cannot be met, then the project is not compliant, and this conclusion should also be discussed with the relevant WFD competent authorities.

Further guidance on Article 4(7) is provided in the Common Implementation Strategy guidance document (EU, 2017).

2.2 Desk Sources

A desk-based study was conducted to gather information relevant to the Proposed Development and to support the understanding of baseline conditions. Review of relevant information relating to the study area was undertaken to develop a baseline for WFD catchments, watercourses, and surrounding areas. The following data sources were used for the desk study:

- WFD catchment data and hydrological information (EPA, 2026a)
- Geological and hydrogeological data (Geological Survey Ireland, 2026) & TEAGASC (2026)
- Land cover data (EPA, 2026b)
- Designation data (NPWS, 2026)
- Rainfall data representative of the Study Area from Met Éireann (2026), Ireland's National Meteorological Service

2.3 Hydromorphological Field Survey

Baseline hydromorphology data are generally not available on EPA's online WFD resources. A hydromorphological field survey was therefore undertaken by an AECOM Principal Geomorphologist and Consultant Water Scientist on 1st October 2026 at baseflow following dry antecedent conditions. A summary of the baseline water body hydromorphological conditions is documented in Appendix A of this report. Its findings were used to interpret potential scheme impacts, which are discussed throughout the main body of this report.

2.4 Limitations and Assumptions

This WFD assessment has been limited by the following conditions and assumptions. If there are changes to these, the assessment provided herein should be reviewed and updated accordingly.

- Assessments are based on design information made available at the date of reporting (6th October 2026).
- It is assumed that the contractor will successfully apply for all required permits and licenses to in advance of any discharges being made to infrastructure or water bodies.

- It is assumed the contractor would implement all required measurements set out in any CEMP.
- It is assumed that outfall designs will comprise modification to the river banks for a maximum length of 2m and will be constructed at the locations depicted in the available drainage plans (as of 6th October 2026).

3. Step One: Context and screening

The purposed of the WFD screening stage is to identify the area affected by the Proposed Development and to determine whether that influence has the potential to adversely impact upon WFD water body receptors.

The screening stage also identifies specific activities that could affect receptor water bodies' WFD status and objectives and carries them forward to the subsequent stages of the assessment process. Water body receptors that are screened out are not carried forward, and justification is provided.

3.1 The Proposed Development

The Proposed Development, which has an applicate site area of 11.4ha, will consist of:

- 130 residential units including:
- Landscaping works to include:
  - 11,763 sqm of public open space with formal and informal play areas.
  - 1,040 sqm of communal open space, and private open space is provided to serve the proposed residential units.
  - Provision of pedestrian and cycle routes.
  - Landscaping including replacement planting, enhancements to riparian corridors and boundary treatments.
- Car and bicycle parking spaces for the residential units.
- A new vehicular entrance, access road and active travel provision including:
  - Widening of Mullally's Lane.
  - New pedestrian and cycle access from Mullally's Lane.
  - Provision of a new T-junction and vehicular and pedestrian access from Greenogue Drive.
  - Pedestrian and cycle access from Coolamber Drive.
  - Pedestrian links to Coolamber Road and Rathcoole Park.
  - Bridge over the Coolmine Stream.
  - Internal access roads.
- 2 no. senior GAA grass pitches measuring 20,800 sqm and 1 no. junior grass pitch measuring 6,240 sqm served by:
  - GAA pavilion of 137.26 sqm.
  - Car and bicycle parking spaces.
  - Site levelling, reprofiling and drainage works to the pitch area, including reuse of existing topsoil on site and import of sand.
- ESB substations/switchrooms, lighting, site drainage works, water supply and foul services including pumping station, SuDS features and all ancillary site development works above and below ground.

Further information on the proposed development is provided in the Environmental Impact Assessment Report which includes required mitigation measures.

3.2 Environmental Context

3.2.1 General Characteristics

The development site, and study area, lies within the Camac_020 WFD river water body catchment. The development site lies within an area that presently consists of marginal sub-urban residential land, i.e., land to the rear of existing property garden, and large areas of unmanaged grassland, (alluvial) woodland and open public use grassland comprising part of Rathcoole Park and Woodlands. Land use within the catchment more broadly is comprised of a mixture of pasture and unmanaged grassland, hedgerow and sub-urban development, comprising properties along Coolmine Road and an ESB sub-station.

3.2.2 Catchment Geology and Soils

Soils (Teagasc, 2026) within the Proposed Works Boundary and the study area to the north are comprised of a variety of clayey and fine loamy drift substrata which are either formed with siliceous stones or with some clayey and fine loamy drift over shale bedrock. Within study area to the south, in the headwater areas of the catchment, the soils are comprised of coarser substratum, with coarser loamy drift with siliceous stone or shale bedrock. Patches of blanket bog are also recorded in this upper catchment area. The soils within the river corridor of the River Camac were comprised of alluvial material formed of silt and sand over non-calcareous gravel.

Superficial deposits and bedrock substratum are recorded by GSI (2026). Superficial material within the Proposed Works Boundary as well as the wider study area to the north of the site is predominantly comprised of Limestone derived till. To the south, in the upper catchment and wider study area, till is derived of sandstone parent material rather than limestone. Superficial material within the river corridor of the River Camac is comprised of alluvium and gravels derived from limestone deposits. A large, contained area to the north of the N7 is also comprised of limestone gravels.

Bedrock geology also varies to the north and south, with bedrock to the north comprised of argillaceous and cherty limestone and shale which are likely relatively permeable, whilst to the south bedrock is comprised of less permeable mudstone, greywacke and conglomerate rocks.

3.2.3 Catchment Hydrology

The Proposed Works Boundary lies within the Camac_020 WFD river water body. The water body is comprised of the following watercourses:

- The River Camac – flows from south to north in a channel east of the Proposed Works Boundary. The watercourse arises west of Knackannavea (hill) and flows south west c. 2.5km to Brittas Lake, a reservoir in the headwaters of the catchment which likely regulates downstream flow. From here the Camac flows c. 4.9km north, following and crossed by the N81, into the study area, past the Proposed Works Boundary to the N7 crossing. From here it continues northeast into Dublin where it meets the tidal River Liffey near Dublin Heuston Station.
- The Slade – A small tributary channel which arises to the south of the Proposed Works Boundary, just north of Coolmine Road. The watercourse flows north c.650m to a confluence with the Crockshane, east of the Proposed Works Boundary.
- The Crockshane – A tributary of the River Camac, arising southwest of the Proposed Works Boundary, just outside of the Study Area. The watercourse arises near Coolmine Equestrian Centre and flows north-east for c.1km across pasture fields and Rathcoole Woodlands to a confluence with The Slade, from where it continues a further c.400m to the confluence with the River Camac.
- The Coolmine Stream – A small watercourse that originates from the unnamed watercourse that flows north through Rathcoole Park as a landscape feature. The Rathcoole flows 500m to the east meeting a confluence with the River Camac.

Additionally, whilst not recorded by the EPA, another unnamed watercourse flows through Rathcoole Park. The watercourse does not constitute a WFD river water body in full or as part of another water body, e.g., Camac_020. The feature is commonly known as (and hereafter referred to as) Fitzmaurice Stream. The watercourse arises in and supports the Rathcoole Woodland, located to the south of the park, and flows through the park in a northerly direction, crossing under the R120 and N7 in the northwest corner of the park. It comprises a decorative watercourse that is heavily modified with several weir like waterfall features and two small on-line ponds. Based

on the hydrological network of the site it is anticipated that a proportion of flow is captured from the Fitzmaurice Stream and flows east to the River Camac in the Coolmine Stream which does form part of the Camac_020 WFD river water body. Whilst this was not observed on site, as no flow was present in the Coolmine Stream, the hydrological connection of the two water bodies could not be discounted, therefore it is assumed that the watercourses are linked and flow does pass from Fitzmaurice Stream into Coolmine Stream.

The Camac_010 comprises the upper catchment for the River Camac, with the boundary between the two watercourses lying at Coolmine/Castle Road. The watercourse is supplies by two (2) tributaries, the Raheen09 and the Lugg. It is within this water body that the Britta Lake is located.

The Camac_030 lies downstream and receives flow from the Camac_020.

The Liffey_170 lies to the north west of the Proposed Works Boundary within the study area, whilst the water body is substantial in size, only two watercourses, the Greenoge09 and Jordanstown 09, lie within the study area. Both watercourses flow northeast towards the main River Liffey but are unmapped under the Aerodrome Business Park.

The nearest weather station is the Casement Aerodrome weather station, approximately 3km northeast of the Proposed Works Boundary. The 30-year or ‘long term average’ (LTA) annual rainfall (1991-2020) is 783.5 mm, which falls within the annual average for the eastern part of Ireland (750 to 1000 mm) (Met Éireann, 2026). The datasets show that monthly rainfall at Casement Aerodrome is generally lowest in the spring months (February to May), and highest in the late Autumn (October and November).

A summary map of WFD surface water bodies is still in preparation at the date of submission of this draft report, but WFD water bodies have been checked on EPA websites and written assessments are comprehensive according to the latest data and mapping.

Figure 3-1

A summary map of EPA’s surface water network is still in preparation at the date of submission of this draft report, but water networks have been checked on EPA websites and written assessments are comprehensive according to the latest data and mapping.

Figure 3-2

A summary map of WFD groundwater bodies is still in preparation at the date of submission of this draft report, but WFD groundwater bodies have been checked on EPA websites and written assessments are comprehensive according to the latest data and mapping.

Figure 3-3

3.2.4 WFD Status

WFD Status data for the five surface water and two groundwater bodies within the Study Area of the Proposed Development, and forming the upstream and downstream hydrologically connected water bodies are summarised in Table 3-1.

Table 3-1Summary of WFD Surface Water and Groundwater Body Status data (EPA 2026a)

WFD Water Body	WFD Subcatchment	WFD Catchment	Overall Status				WFD Risk Status (and Pressures)		Status detail SW 2019-2024		
			2010 - 2015	2013 - 2018	2016 - 2021	2019 - 2024	2nd Cycle	3rd Cycle	Biological	Chemistry Status / conditions	Heavily modified
Surface Water Bodies											
Camac_010	Liffey_SC_090	Liffey	Good	Good	Poor	Moderate	Not At Risk	At Risk (hydromorphology, IS)	Moderate	No info	Yes
Camac_020	Liffey_SC_090	Liffey	Moderate	Moderate	Moderate	Good	At Risk (urban run-off)	At Risk (Urban run-off)	Good	Pass	Unknown
Camac_030	Liffey_SC_090	Liffey	Poor	Poor	Poor	Poor	At Risk (urban run-off and industry)	At Risk (Urban run-off and industry)	Poor	Good	Unknown
Camac_040	Liffey_SC_090	Liffey	Poor	Poor	Poor	Poor	At Risk (urban runoff, hydromorphology and urban wastewater)	At Risk (hydromorphology, urban run-off and urban wastewater)	Poor	Good	Yes
Liffey_170	Liffey_SC_090	Liffey	Moderate	Moderate	Poor	Poor	At Risk (urban runoff and urban wastewater)	At Risk (Urban run-off and urban wastewater)	Poor	Pass	Yes
Groundwater Bodies											
Kilcullen	N/a	Liffey and Dublin Bay, Ovoca-Varty, Slaney & Wexford Harbour Barrow.	Good	Good	Good	Good	Not At Risk	At Risk (agriculture, forestry, unknown)	-	Good	-
Dublin	N/a	Boyne, Nanny-Delvin, Liffey and Dublin Bay, Barrow.	Good	Good	Good	Good	Not At Risk	Review	-	Good	-

3.3 WFD Screening

3.3.1 Screening of WFD Water Bodies

The study area encompasses four WFD river waterbodies and two WFD groundwater bodies as shown on Figure 3-1 and Figure 3-2. WFD Screening of the risk of impact to these waterbodies is provided in Table 3-2.

Table 3-2 Screening of WFD water bodies potentially impacted by the Proposed Development

Water Body	Screening Outcome	Justification
River Water Body		
Camac_020	In	The Proposed Development is located within this WFD river water body. Watercourses comprising the waterbody run immediately adjacent to the Proposed Development and there are proposed outfalls and discharged to the Coolmine Stream. The water body may be directly impacted in such a way that could lead to a decline in WFD status or impact the ability for the water body to meet its WFD objectives.
Camac_030	Out	The Proposed Development lies c3.6km downstream of the Camac_030 river water body. Whilst hydrologically connected, it is not anticipated that impacts from the Proposed Development would proliferate this far downstream.
Camac_040	Out	The Proposed Development lies downstream of Camac_030. As no impacts are anticipated to effect Camac_030, which has been scoped out, it is not anticipated there would be any impact on Camac_040.
Camac_010	Out	Whilst the water body is hydrologically connected to the Camac_010, as the water body lies upstream of the Proposed Development (c.600m) and is separated from the water body by road infrastructure indirect effects are not anticipated to proliferate upstream to this water body.
Liffey_170	Out	There is no direct hydrological pathway from the Proposed Development to this water body, thus there is no pathway for indirect impacts of the Proposed Development on the Liffey_170.
Groundwater Body		
Kilcullen (IE_SE_G_107)	In	The Proposed Development is located within this WFD groundwater body, and therefore, the water body may be directly impacted in such a way that could lead to a decline in WFD status or impede the water body from meeting its WFD objectives.
Dublin	In	The Proposed Development is lies in close proximity to the WFD groundwater body, and therefore, the water body may be directly impacted in such a way that could lead to a decline in WFD status or impede the water body from meeting its WFD objectives.

3.3.2 Screening of Sensitive Sites

As part of the Proposed Development, sensitive sites within the Study Area are being screened to identify any potential impacts on nationally or internationally protected habitats and species. This screening ensures compliance with the WFD and helps avoid adverse effects on designated sites, such as National Heritage Areas (NHAs), proposed NHAs (pNHAs), Special Areas of Conservation (SACs), and Special Protection Areas (SPAs). By identifying sensitive sites early, the project can incorporate mitigation measures and ensure that statutory conservation obligations are fully considered in planning and design.

There are no sensitive sites located within or immediately downstream of the Study Area (NPWS, 2026). The closest protected area is an pNHA, the Slade of Saggart and Crooksling Glen which lies upstream of the site within Camac_010. As this lies over 2km upstream of the Proposed Development it is not anticipated to be impacted.

3.3.3 Screening of Activities

The Proposed Development includes activities that present a potential risk to the WFD status of the screened in water bodies identified in Table 3-2. The screening of activities and justification for the screening assessment is provided in Table 3-3 for construction phase activities and Table 3-4 for operation phase activities.

Table 3-3 Screening of Construction Phase activities for the Proposed Development

Activity	Description	Screening Outcome	Justification
Earthworks (inc. vegetation removal, site stripping)	Generation and release of sediment into watercourses: Erosion and transport of sediment by wind and rain into watercourses.	Out: All - Camac_020, Dublin, Kilcullen	Potential impacts will be managed under measures documented in a CEMP, as outlined in EIAR Chapter 8 Section 8.6.1 and 8.6.2, which will included minimising extent and duration of exposed ground, soils to be stored minimum of 20m from watercourse and outside of surface water flooding area with additional mitigation if there is a risk of sediment entering watercourse, Silt traps and settlement tanks, treatment and testing of discharges/pumped water good construction practices.
Stockpiling of materials	Generation of fine sediment and/or contaminants from stockpiled building materials, e.g., aggregates, materials with contaminants	Out: All - Camac_020, Dublin, Kilcullen	Potential impacts will be managed under measures documented in a CEMP, as outlined in EIAR Chapter 8 Section 8.6.1 and 8.6.2, which will include soils to be stored minimum of 20m from watercourse and outside of surface water flooding area with additional mitigation if there is a risk of sediment entering watercourse, draining of stockpiles will through a grit trap/settlement pond to collect silt for removal (Stockpiles outside of areas specifically designed will be covered to prevent creation of runoff/ contaminated runoff).
Site operations involving chemicals, oils solvents, concrete, lime etc. For example, refuelling	Potential for leakage and spillage of chemicals which flow into watercourses.	Out: All - Camac_020, Dublin, Kilcullen	Potential impacts will be managed under measures documented in a CEMP, as outlined in EIAR Chapter 8 Section 8.6.1 and 8.6.2, and will include; designated locations (construction compounds and temporary areas) for refuelling, bunded storage areas for oils, solvents and paints, managed drainage and collection of bunded drainage for safe disposal, impermeable refuelling areas for refuelling and storage of oil/fuel, concrete mixing and washing areas will be established ideally 50m from but minimum of 20m from watercourses and 5m from foul drains and will incorporate pollution prevention measures draining these areas and preventing untreated water from entering watercourses. If mobile bowsers are used a double skinned tank with safety lock on hosing will be required and locked shut when not in use. Spill kits with stocks of hydro-carbon absorbent materials used. A buffer zone of 10m between storage, mixing and washing areas and excavations will be maintained and 20m from watercourses or water dependent habitats.
Site drainage and runoff management (inc. from impermeable areas, site runoff, dewatering)	Changes to surface water flows altering in-channel flow character	Out: All - Camac_020, Dublin, Kilcullen	Potential impacts will be managed under measures documented in a CEMP, as outlined in EIAR Chapter 8 Section 8.6.1 and 8.6.2. Surface water management measures will regard SuDS Manual (2015), Environmental Good Practice on Site Guide (2023) and Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors (2001) and TII's Road Drainage and the Water Environment (TII, 2015) and Standard for Highways' Design Manual for Roads and Bridges (DMRB) LA 113, Road Drainage and the Water Environment (National Highways, 2020). Construction to be planned around weather, works in channel not undertaken during high flow, contractor to sign up to flood warning alerts increasing protective and mitigation measures to manage drainage as risk increases, preparation and adherence to a emergency response plan.
Excavations and dewatering	Altered groundwater levels and groundwater flows and altered in-channel flows resulting from	Out: All - Camac_020, Dublin, Kilcullen	A construction groundwater control strategy will be prepared and employed by the contractor, considerate of CIRIA Groundwater Control: Design

Activity	Description	Screening Outcome	Justification
	groundwater changes due to dewatering required for excavation and construction.		and Practice, Second Editions' (CIRIA, 2016) and the activity will follow measures outlined in the contractors CEMP as outlined in EIAR Chapter 8 Section 8.6.1 and 8.6.2, including measures minimising runoff to ground and watercourses, no discharge to infrastructure or watercourses without approval, detailed drainage system, removal of groundwater to an outfall area with silt mitigation, use of physical cut-off barriers between sump holes and water receptors, discharge rates managed to prevent flood risk or scour, use of silt bags, fences and/or fences, regular inspection of outfalls.
Construction of watercourse crossing	Generation and release of sediment into watercourse from excavation of and near the riverbank. Use of chemicals and building materials e.g., concrete	Out: All - Camac_020, Dublin, Kilcullen	The crossing would be open span and not restrict the flow of water within the channel during construction. No in stream works are expected, thus, maintaining the bed and bank structure and causing no disturbance to the morphology of the channel. Excavations along both banks of 150m^3 are anticipated to be required (though volumes may change subject to geotechnical detailed design) to permit the construction of the clear span crossing, however, impacts are anticipated to be negligible following management of sediment according to measures outlined in a CEMP, e.g., silt fencing, and in accordance with measures reported in Inland Fisheries Ireland (2026). 'Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters'. Imported materials will be minimised. Surplus material will be tested and disposed of appropriately.
Construction of outfall headwalls	Installation of outfall headwall will require tree/hedgerow clearance, excavation of the riverbank, laying of a suitable base and connection of the drain into the headwall with grout.	Out: All - Camac_020, Dublin, Kilcullen	Excavations will remain open for the shortest possible period of time and the bank material and vegetation will be reinstated as possible. Imported materials will be minimised. Use of concrete will be in dry conditions and wastewater from works will be managed in accordance with other surface waters according to the CEMP. Management of sediment according to measures outlined in a CEMP and in accordance with measures reported in Inland Fisheries Ireland (2026). 'Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters'.
Construction of foul water network and rising main	Construction of foul water rising main and network (crossing the Coolmine Stream and Fitzmaurice Stream via existing culvert and bridge respectively).	Out: All - Camac_020, Dublin, Kilcullen	Excavations will remain open for the shortest possible period of time and drainage from the site will be managed under measures documented in a CEMP, as highlighted under "Earthworks" and "Site drainage and runoff management" documented in Section 8.6.1 and 8.6.2 of the EIAR.
Wastewater storage from welfare facilities	Management of waste from welfare facilities impacting water quality.	Out: All - Camac_020, Dublin, Kilcullen	Potential impacts will be managed under measures documented in a CEMP, as outlined in EIAR Chapter 8 Section 8.6.1 and 8.6.2, and will include discharge of waste to on-site receptable and emptied on regular basis for disposal.
All other construction phase activities	Any other activities associated with the construction of the Proposed Development.	Out: All - Camac_020, Dublin, Kilcullen	Potential impacts will be managed under measures documented in a CEMP, as outlined in EIAR Chapter 8 Section 8.6.1 and 8.6.2. While impacts to the water environment are generally expected to be temporary, the CEMP must address the elements of construction that pose a particular risk to water bodies, especially where there is high groundwater connectivity or proximity to sensitive habitats. Therefore, this activity has been **screened out** of further assessment.

Table 3-4 Screening of Operational Phase activities for the Proposed Development

Activity	Description	Screening Outcome	Justification
New hardstanding and impermeable	Increased capture of rain by hardstanding areas, including internal access roads and	Out: All - Camac_020, Dublin, Kilcullen	Surface water drainage strategy is to retain existing surface water flow paths. A new gravity network will convey surface water flows at the greenfield runoff

Activity	Description	Screening Outcome	Justification
areas & surface water drainage	buildings increasing runoff and thus flows in receiving watercourses and reducing infiltration to groundwater Supply of pollutants and contaminants from the road surface to receiving watercourses		rate via two outfalls, one for Development Area A and one for Development Area B. One of these discharges into the Coolmine Stream (within Camac_020) whilst the second discharges into the local sewer network. Surface water runoff from hardstanding areas will be captured and managed by a SuDS network which has been designed to cater for a 1 in 100-year rainfall event (+20% climate change allowance). Flow will be discharged into Coolmine Stream at greenfield runoff rate of 13.5l/s. The SuDS design will attenuate, filter, retain and treat pollutants and contaminants prior to discharge. This has been demonstrated to minimise environmental impact to receiving watercourses during rainfall events.
Landscaping	Permanent changes to landscape topography permitting development	Out: All - Camac_020, Dublin, Kilcullen	Development areas and primary site access routes for the proposed development site have avoided areas within Flood Zone A. For areas in proximity to Flood Zone A, ground levels are not proposed to be changed and therefore there is no impact on the channel or floodplain nor change of typical or flood flows and thus no change to flow regime or morphology WFD elements.
Site activities involving chemicals	Activities that may be conducted on site such as vehicle movements, firefighting, leaks and spills that may transport chemicals to surface water	Out: All - Camac_020, Dublin, Kilcullen	Surface water runoff from hardstanding areas will be captured and managed by a SuDS network which has been designed to attenuate, filter, retain and treat pollutants and contaminants prior to discharge. This has been demonstrated to minimise environmental impact to receiving watercourses during rainfall events.
Outfall structure	The outfall structure will discharge into Coolmine Stream altering rates of flow and requiring permanent removal of riparian vegetation and natural bank material.	In: Camac_020 Out: Dublin, Kilcullen	It is assumed that structure will comprise a small headwall unit (no longer than 2m in length) installed at the location outlined in the present drainage plan and will be complete with scour protection to minimise the risk of erosion. However, there is the potential for the structure to impact WFD status or prevent achievement of objectives.
GAA Outfall structure	The outfall structure will discharge into Coolmine Stream altering rates of flow and requiring permanent removal of riparian vegetation and natural bank material.	In: Camac_020 Out: Dublin, Kilcullen	It is assumed structure will comprise a small headwall unit (no longer than 2m in length) installed at the location outlined in the present drainage plan and will be complete with scour protection to minimise the risk of erosion. A silt trap manhole will be provided to reduce sediment supply, and flow control will be provided by hydrobrake. However, there is the potential for the structure to impact WFD status or prevent achievement of objectives.
New crossing of Fitzmaurice Stream	Permanent replacement and/or reinforcement of the riverbed, banks and riparian zone. Consequent impacts upon flow regime and consequently sediment regime, from altered channel geometry.	In: Camac_020 Out: Dublin, Kilcullen	A clear-span portal crossing (precast) with a 3.5m span which is wider than the river channel and ties into the bank tops. This would maintain the existing riverbed and bank face but replace the existing bank top and floodplain with the artificial structure. Concrete upstand maintains a vertical clearance of 1.5m from bank top height resulting in a total clearance of ~3.5m. The clear span design, in combination with ~3.5m vertical clearance, should not substantially reduce pass forward flow. Whilst not on a watercourse recognised by the EPA as a whole or part of a WFD river water body, flows from the watercourse do enter Coolmine Stream which is part of Camac_020. Therefore, there is potential for the structure to impact WFD status or prevent achievement of objectives.

3.4 Summary of Step One

The WFD water body screening assessment presented above considered the Proposed Development in the context of WFD water bodies based on their potential to be impacted by the Proposed Development. Only the Camac_020 water body has been screened in as potentially at risk of being affected.

Construction

All construction phase activities have been screened out, as the embedded mitigation to be secured within the CEMP will mitigate impacts, and as any potential impacts would be temporary, they are not considered to result in a potential risk to deterioration of a water body status element or prevent achievement of water body objectives.

Operation

The majority of potential operational phase activities have been screened out, given the embedded mitigation within the drainage strategy and included in the design of scheme components. Only the operation of the new headwalls on Coolmine Stream (in the Camac_020 river WFD waterbody) and of the crossing of Fitzmaurice Stream (which supplies flow to the Camac_020 river WFD water body) have been taken forward for further assessment. As these features do not impact any other WFD waterbodies, Kilcullen and Dublin WFD groundwater bodies have subsequently been screened out of further assessment.

4. Step Two: Scoping the Assessment

Step two of the sequential WFD assessment process is used scope the significance of potential risks with consideration of mitigation measures, and to determine whether any further assessment is needed, and if so, what should be investigated. It also establishes the appropriate level of detail required for subsequent assessment, if any further assessment is needed. It involves identifying potential risks to WFD receptors associated with the components of the Proposed Development that were screened in. In this case, that is the operational presence of the new headwall and crossing structure.

The JASPER checklist guidance (2024) indicates that this should include answering the following questions:

1. Will the effect be temporary and not lead to deterioration in the status of the waterbody (Step 2.2i)?
2. Will the effect be insignificant in the context of the waterbody (Step 2.2ii)?
3. Can it be concluded that there are no potential cumulative effects (Step 2.2iii)?

As both structures are permanent, the screened in operational activities are broadly found to not pass Question 1.

However, in terms of Question 2, the significance of the effect for both the outfall and crossing have been reviewed by scoping the potential effects against the WFD Quality Elements.

As there are no discharges or other chemical elements to the design there are not anticipated to be impacts on physico-chemical supporting elements, or chemical status.

As the outfall structure would impact the riverbank and riparian zone, there may be an impact upon the hydromorphological and biological supporting elements, however, these impacts are not anticipated be significant against any hydromorphological or biological supporting elements in the context of the waterbody. This is because:

1) The extent of the modifications to the bank required for the headwall structure (and scour protection) would be across only a small area effecting an assumed length of only 2m.
2) The Fitzmaurice Stream does not constitute part of the Camac_020 waterbody but flow is taken from this watercourse to the Coolmine Stream which does comprise part of the Camac_020 water body.
3) The crossing of the Fitzmaurice Stream is intended to be clear span, intersecting the topography at the bank top, this would be maintaining the channel bed, banks, bank face vegetation and channel geometry. Whilst there would be a replacement of vegetation and bank top and floodplain morphology this would be localised. As such, the crossing is not thought to impact channel morphology in the context of the water body.

4) As the structure is intended to be clear span and would have a vertical clearance of ~3.5m, it would maintain the present channel geometry and would not be anticipated to impact flow. Therefore, this would not impact the volume of flow available captured from Fitzmaurice Stream by the Coolmine Stream, and does not present a risk of deterioration of the Camac_020 waterbody.

Regarding Question 3, this assesses the potential effects of the operational activities with other operational activities of the scheme or effects of other works.

- There are no other headwalls along the Coolmine Stream that were recorded during hydromorphological baseline survey and no impacts identified. Whilst culverts are present, these are not thought to adversely impact the hydromorphological functioning of the watercourse. There are no cumulative effects for the operation of the outfall.
- Whilst there are other crossings present on the Fitzmaurice Stream, it does not comprise part of a WFD river water body and is a modified, decorative parkland feature. As the structure does not impede the free flow of water downstream and therefore into Coolmine Stream there is no effect from the structure to accumulate with other effects that may be present in the water body.

Consequently, there are not anticipated to be any cumulative effects from these two operation activities.

A scoping assessment of the impact of both operational activities is presented in Table 4-1.

Note that there are no EU protected areas within the study area, so the scoping of these is not applicable.

Table 4-1 WFD scoping of the screened in Proposed Development activities against WFD quality elements.

WFD Quality Element	2.2 (ii) Is the effect on the element **insignificant** in the context of the water body?	2.2(iii) Can it be concluded that there are no potential **cumulative effects?**	**Justification**
Hydromorphological supporting elements			
Hydrology: quantity and dynamics of flow	Yes	Yes	No potential impact associated with the new headwall or crossing.
Hydrology: connection to Groundwater Bodies	Yes	Yes	No potential impact associated with the new headwall or crossing.
River Continuity	Yes	Yes	The headwall is sited on the bank and would not provide a barrier to flow with no impact on continuity, as the channel is embanked and overdeep the structure would also not impact lateral connectivity. The crossing structure has been designed to permit free flow of water unimpeded and would not impact continuity.
Morphology: river Depth and Width Variation	Yes	Yes	There will be no impact on the river depth and width, as the headwall will be in the steep, overdeep bank and not impeding on width or depth. The crossing structure is clear span and has been designed to maintain channel banks and geometry and would not impact on variation.
Morphology: riverbed structure, substrate	Yes	Yes	Neither the headwall nor crossing modify the riverbed or bed substrate.
Morphology: riparian zone structure	Yes	Yes	The riparian structure will be replaced where the outfall headwall and crossing structure are present. However, the impact of the outfalls would be localised and therefore not impact the water body, and the crossing would also have a relatively local effect and would affect an already heavily modified section of watercourse which does not comprise part of the water body and impacts on riparian structure would not affect the receiving water body.
Physico-Chemical Quality Elements			

WFD Quality Element	2.2 (ii) Is the effect on the element **insignificant** in the context of the water body?	2.2(iii) Can it be concluded that there are no potential **cumulative effects?**	**Justification**
Thermal Conditions	Yes	Yes	No potential impact associated with the new headwall or crossing.
Oxygenation	Yes	Yes	No potential impact associated with the new headwall or crossing.
Salinity	Yes	Yes	No potential impact associated with the new headwall or crossing.
Acidification	Yes	Yes	No potential impact associated with the new headwall or crossing.
Nutrient Conditions	Yes	Yes	No potential impact associated with the new headwall or crossing.
Specific synthetic pollutants	Yes	Yes	No potential impact associated with the new headwall or crossing.
Specific non-synthetic pollutants	Yes	Yes	No potential impact associated with the new headwall or crossing.
Biological Quality Elements			
Phytoplankton	Yes	Yes	No potential impact associated with the new headwall or crossing.
Macrophytes and Phytobenthos	Yes	Yes	No potential impact associated with the new headwall or crossing.
Benthic invertebrate fauna	Yes	Yes	Marginal habitat and food source provided by the riparian vegetation and natural bank presently would be lost, however, these would be over a small area, and would not impact the water body.
Fish fauna	Yes	Yes	Marginal habitat and food source provided by the riparian vegetation and natural bank presently would be lost, however, these would be over a small area, and would not impact the water body.
Chemical status – see Directive 2008/105/EC amended by 2013/29/EU			
Priority substances	Yes	Yes	No potential impact associated with the new headwall.
Priority hazardous substances	Yes	Yes	No potential impact associated with the new headwall.

Based on the assessment above, the scoping has indicated that all potential impacts associated with the new headwall and crossing of Fitzmaurice Stream are not significant in the context of the waterbody, and there are no potential cumulative effects.

The Scoping the Assessment has therefore found that although there are long-term effects associated with the new outfall, these are not significant in terms of the WFD waterbody status and there are no cumulative effects. Therefore, no further assessment is required, and the project is compliant with WFD.

5. Conclusions

This WFD compliance assessment has followed EU-level guidance document Water Framework Directive - Project assessment checklist tool, published by the Joint Assistance to Support Projects in European Regions (JASPERS, 2024). This is a four step methodology, however only Step One: Context and Screening and Step Two: Scoping the assessment were undertaken, as the results of the Step Two Scoping assessment identified that risks to WFD objectives are satisfactorily mitigated within the designs and no further assessment is required.

The screening assessment (Step One) identified the Proposed Development to lie exclusively within one WFD river water body and two WFD groundwater bodies. An additional four potential WFD river water bodies were identified that are either, within the 1km Study Area around the Proposed Works Boundary or hydrologically connected to the WFD river water body the Proposed Development is located within. However, following a screening exercise, only the one WFD river water body and two WFD groundwater bodies that the Proposed Development was located within were screened in on account of there being no effects likely to migrate upstream or downstream to hydrologically connected waterbodies. The screened in water bodies are as follows:

- Camac_020 (IE_EA_09C020250)
- Kilcullen (IE_EA_G_003)
- Dublin (IE_EA_G_008)

Embedded mitigation measures in the design, most crucially via a CEMP, are anticipated to successfully mitigate potential impacts on WFD receptors if appropriately delivered. As such, construction activities were screened out.

Similarly, embedded mitigation measures are also anticipated to successfully mitigate most operational impacts to WFD receptors. Most notably:

- The provision of a suitable specified surface water drainage system inclusive of appropriate treatment of pollutants and contaminants, maintenance of this and restriction of discharge to greenfield run-off rates up 10 a 1 in 100-year (+20%) event, should prevent deterioration or achievement of WFD objectives within the Camac_020 water body and would not impact groundwater bodies.

Impacts from the permanent physical presence of the drainage system outfall headwall, and a vehicular bridge crossing of Coolmine Stream were, however, screened in for assessment in the Scoping Phase (Step Two).

The Step Two: Scoping assessment considered that these elements of the Proposed Development pose negligible and insignificant risks to WFD objectives.

The limited area of impact of the outfall headwall (ca. ~2m) is insignificant in proportion to the length of Camac_020 water body. The headwall is to be sited in the bank and would not provide a barrier to flow meaning no impact on longitudinal continuity, and since the channel is already embanked and overdeep the structure would not impact lateral connectivity.

The Coolmine Stream bridge crossing, which is a vehicular access to the residential development, is situated on a watercourse that does not directly comprise part of the Camac_020 WFD water body. The crossing structure has been designed as a single-span precast structure with an internal span of 3.5m determined from topographical survey which ties into the existing top of watercourse slopes, and a vertical clearance of 1.5m from the top of the watercourse to the soffit of the structure. The bridge will therefore not impede the flow of water or hydromorphological or biological continuity.

With these considerations, it has been assessed that the effects during the operational phase of the project from the physical presence of these structures are insignificant in the context of the water body and are not likely to result in cumulative effects.

It has therefore been concluded that the Proposed Development is unlikely to cause deterioration in the status of any the water body and would not prevent any water body from achieving Good Ecological Status.

The assessment demonstrates that, on the basis of scheme information available at the time of writing (October 2026) the **Proposed Development is compliant with the WFD** and no further WFD assessment is required at this stage.

This conclusion would need to be reassessed if any elements of the scheme design or CEMP mitigations change or if CEMP mitigations are not implemented.

6. References

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Appendix A: Hydromorphological Baseline Survey

Rathcoole Housing Development – Hydromorphological Baseline Survey: Technical Note

To	Project name	Project number	Date
South Dublin County Council	Rathcoole Housing Development	60765651	October 2026

Prepared by	Reviewed by	Verified by	Approved by
Joshua Moore Principal Geomorphologist	Arved Schwendel Associate Geomorphologist	Neil Williams Technical Director	Neil Williams Technical Director

Overview

Introduction

South Dublin County Council (hereafter referred to as the 'Applicant') is proposing a development comprising a residential scheme of 130 no. dwellings and 2 no. senior and 1 no. junior grass pitches on an application site measuring c.11.4ha. The application site lies to the south and southeast of Rathcoole Village, County Dublin. Rathcoole Village is located c.15km to the southwest of Dublin City Centre, c.13km northeast of Naas, County Kildare and c.13km to the north of Blessington, County Wicklow. The established settlement largely consists of a traditional development pattern with a central main street which contains local shops and facilities and is surrounded by relatively low-density housing estates.

AECOM have prepared a WFD Screening Assessment to identify any potential risks and impacts that the Proposed Development could pose on the condition of the water environment, and to assess whether the Proposed Development is compliant with WFD regulations and objectives.

In support of the "SDCC Rathcoole Housing Development, WFD Screening Assessment" a hydromorphology survey of the watercourses which pass through the site boundary has been conducted. This survey aimed to gather information regarding the present-day characteristics of the watercourses within the site boundary to provide context to potential effects and impacts outlined in the WFD Screening Assessment and the determination of the compliance of the scheme. The hydromorphology survey was undertaken on 1st October 2026 at baseflow and following dry antecedent conditions.

This Technical Note documents the hydromorphology survey and provides a high-level summary of the survey approach taken and the findings of the survey.

Site details

The development site comprises c.11.4ha of land to the south and south-east of Rathcoole Village which lies within the administrative area of South Dublin County Council. The majority of the site comprises well- used amenity parkland with areas of deciduous woodland also present to the south of the study site.

The site lies within the Camac_020 WFD river water body catchment. There are four notable watercourses recorded by the Environmental Protection Agency (EPA) that lie within or are in proximity to the study area, as well as one decorative watercourse not recorded by the EPA. These are as follows:

- The River Camac;
- The Slade;
- The Crockshane;
- The Coolmine Stream; and,

– Fitzmaurice Stream (not recorded by the EPA).



Figure 0.1: Photograph looking upstream of Fitzmaurice Stream

Methodology

A hydromorphological survey of the watercourses within the study area was conducted 1 October 2026. The survey broadly followed a simplified version of the fluvial audit approach of Sear et al. (1995). This comprised mapping of channel form (e.g., cross-sectional and planform geometry, bed and bank material composition), sediment generation, transport and storage processes, river typologies, hydrodynamics, valley and floodplain characteristics, and presence of anthropogenic modifications and evidence of pressures (e.g., channel realignment, flood embankments, impounding structures, and bed and bank protection) impacting the watercourses present.

Surveys focused on the Fitzmaurice Stream and Coolmine Stream, being watercourses directly impacted by the proposed development, with attention also paid to the Camac as the primary watercourse for the water body and receiving watercourse from flows within the Coolmine Stream. The characteristics of the Crockshane were noted at the confluence with the Camac River and supplemented with data from prior surveys undertaken in September 2025.

Surveys were conducted during a period of fair weather on the afternoon of Thursday 1 October 2026. No flow or rainfall gauging records exist for the site to provide an understanding of the antecedent conditions; however, a proximal gauge can be found less than 3km northeast away at Casement Aerodrome and another approximately 3km south at Brittas (Glenaraneen). Data for Brittas (Glenaraneen) is not yet available for the preceding month of September, nor for August. However, data from Casement Aerodrome is available. Data show rainfall total for September of 88.6mm, greater than the long-term average (61.6mm), likely resulting in elevated flows for the time of year. There had been 28.5mm of rainfall during the night (after 22:00) of the 29th of September. However, this is set against a background of flows which vary substantially from the long-term average (Table 2). Flows observed during the survey did not appear to be high or low but were likely lower than average based on comparison of water levels to bank and vegetation conditions.

Table 2. Monthly Rainfall totals

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2026	114.4	99.0	58.9	20.2	19.9	100.0	3.5	56.3	88.6	-	-	-
2025	79.1	60.6	32.8	62.0	58.0	115.0	95.7	35.1	73.7	68.9	131.4	66.5

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
LTA	65.0	55.5	51.5	55.3	58.7	66.1	59.4	71.2	61.6	81.6	81.9	75.7

Source: www.met.ie/climate/available-data/monthly-data

Hydromorphological Survey findings

Survey findings

Observations regarding the hydromorphological quality elements of each of the watercourses within close proximity to the proposed development are recorded in Table 3 to Table 7. An outline of survey locations is provided in Figure 2.

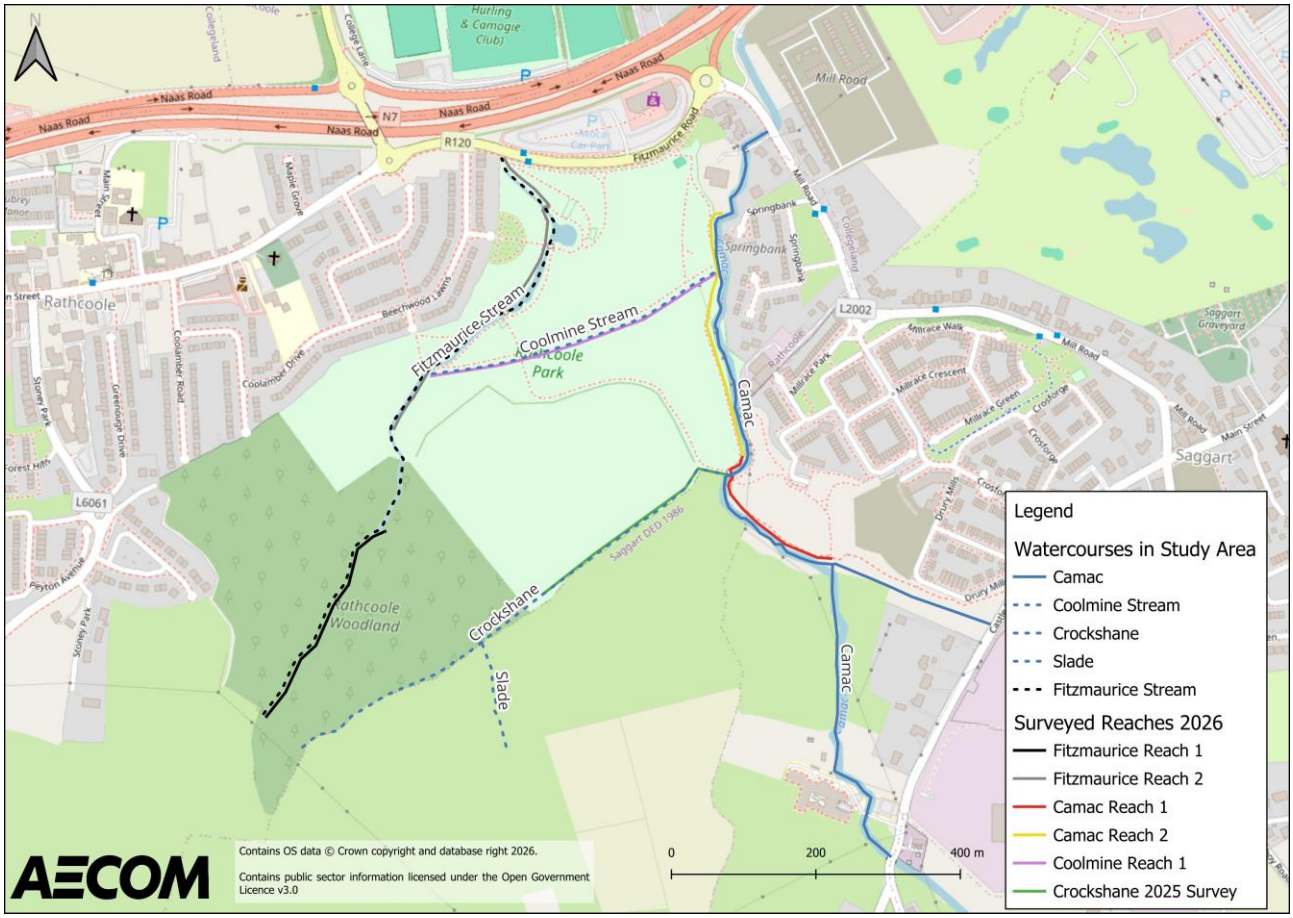


Figure 2 Watercourses within the study area and reaches surveys in 2026. Note. The survey of Crockshane was conducted in 2025

Fitzmaurice Stream

Reach 1

SG 02547 84799 - SG 02696 85050

Table 3 Hydromorphological overview of the characteristics of Reach 1 of the Fitzmaurice Stream

Baseline Condition	
Quality and Dynamics of Water Flow	Flow conditions appeared to be relatively low with some exposure of bed material in shallower areas of the channel resulting from asymmetric channel geometry. Flows within the channel formed pool and riffle flow types within the reach comprising deeper, slower flowing sections and shallower, steeper bed sections with faster flowing turbulent water. Pools coincide with areas of finer bed substrate, with a thin layer of silt often found draped

	over underlying coarse bed material, whereas riffles comprise cleaner, coarser bed sediment. Flow dynamics were also influenced by the presence of large wood, interrupting the natural pattern of flow and creating local variation. Further downstream, where visible, choking of the channel impacts the varied, albeit, shallow, flows present, homogenising and slowing flow.
River Continuity	Lateral continuity varied throughout the reach, but the channel remained generally well connected to the adjacent land and "floodplain" comprising alluvial woodland. As the channel continued to the north (downstream), where visible it, became progressively more incised and was generally poorly connected. Notably at an overgrown culvert present in the transition from alluvial woodland to parkland, the channel was over 1m deep and was also constrained by the culvert itself. From this location in the downstream direction the channel remained poorly connected. Longitudinal connectivity was generally unconstrained, with only the one culvert (noted above) having any influence over connectivity. The bed of the river could not be seen in the culvert, however, it is assumed that the bed and morphological processes have been impacted by the culvert.
River Depth and Width Variation	As a relatively natural stream at the upstream extent of the survey within the woodland the channel had a varied geometry resulting in a somewhat diverse pattern of flow and geomorphic processes. However, where visible further downstream the channel became incised with consistent steep banks and narrow channel width.
Structure and Substrate of Riverbed and Banks	Similar to the above characteristics, structure and substrate of the bed was more varied upstream, comprising mobile or semi-mobile coarse gravel to sand sized sediment, with a predominance of fine gravels within the reach. The variation corresponds with flow types with finer material in pools and coarser material in riffles. Further downstream bed material comprised armoured cobbles in steeper sub-reaches and silt where flow slackened, both in response to lengths which are likely to be more modified or artificial. River banks were comprised of earth throughout the surveyed length, except where culverted.
Structure of Riparian Zone	The riparian zone in the upstream sub-reaches comprised deciduous woodland with varying densities of understory vegetation, obscuring the channel from view. Further downstream, where the canopy opens and trees are absent the channel vegetation and riparian vegetation comprised overgrown shrubs and tall herbs, obscuring the channel and choking the flow.
Photographs	
	

Figure 3 Most upstream section of Fitzmaurice Stream surveyed, trash present but natural erosional processes and pool-riffle sequence formed of gravel to sand sediment	Figure 4 Clearer evidence of pool-riffle sequencing with coarser gravels predominant substrate in steeper riffle sections. Flow barely perceivable in pools
	
Figure 5 Further evidence of trash within the channel, here upstream of an overgrown access culvert within the woodland area. Coarse bed material still present.	**Figure 6 A wide riparian zone along the right bank of the channel vegetated by tall shrubs and grasses.**

Reach 2

SG 02696 85050 - SG 02865 85549

Table 8 Hydromorphological overview of the characteristics of Reach 2 of the Fitzmaurice Stream

Baseline Condition	
Quality and Dynamics of Water Flow	Within a short sub-reach present at the upstream extent of Reach 2 where the channel passed in an incised channel alongside a hedgerow, flow and velocity was variable with pool and riffle flow types recorded in short sequence. Accordingly, bed sediment varied with finer material in slacker flowing pools and coarser material in higher energy turbulent riffle sections. Downstream, of a culvert located near the intersection of the Fitzmaurice Stream with the Coolmine Stream, the Fitzmaurice Stream was generally choked with vegetation resulting in slow flow and areas where flow could not be perceived.
River Continuity	Lateral connectivity alongside the hedgerow was generally poor. The channel was heavily incised with bank heights of approximately 2m. Downstream of this sub-reach, the channel was better connected but banks are still artificially high but improve locally where weir like features maintain channel bed level whilst bank heights continued to fall down slope. Longitudinal connectivity was poor. A culvert of approximately 600mm diameter and 7m in length was present at the upstream extent of the reach (downstream of the hedgerow lined subreach) impacted longitudinal connectivity and flow. Downstream of this, two stepping stone features which ran perpendicular to the channel and seven weirs forming artificial waterfall like features, generally ranging between 0.5m and 1m in height with one 2m high feature, also impact the passage of flow and sediment. Slacker flowing reaches were also noted to be choked with vegetation, also impacting the free longitudinal connectivity of the channel.
River Depth and Width Variation	As the channel was artificial or, at least, strongly impacted by heavy modification, width and depth were generally homogenous. In the hedgerow lined subreach, the channel was overdeep (2m) and width waS consistent. Downstream, channel width and depth were relatively consistent in sub-reaches between weirs/stepping stones/bridges, generally remaining around 1.5m or 2m wide between weir features and between 0.1m and 0.2m deep. Where wider, flow was slow and sedimentation has occurred, permitting vegetation growth, choking the channel and adversely impacting morphology.

Structure and Substrate of Riverbed and Banks	Due to the slow flow caused by the low gradient created by the several weir features, bed sediment was typically comprised of a consistent layer of silt, which blanketed any coarser bed material that was recorded, albeit infrequently. Short lengths of faster flowing water, often found in proximity to artificial waterfall-type features formed by weirs, or at slightly narrower sections, were found to contain some fine to medium gravels. Natural sections of the river bank were comprised of earth. Sections of the channel were culverted and weir-like artificial falls were numerous. Where present, bank material was artificial, comprising either concrete or placed boulders.
Structure of Riparian Zone	The riparian zone was heavily managed, comprising mown grassland and a narrow buffer of tall herbs, obscuring the channel from view. Frequent breaks in the tall herbs were present, where mown grasses extended to the waters edge. Short length of tree cover were also present, shading the channel and producing sections of open, un-choked, channel.
Photographs	

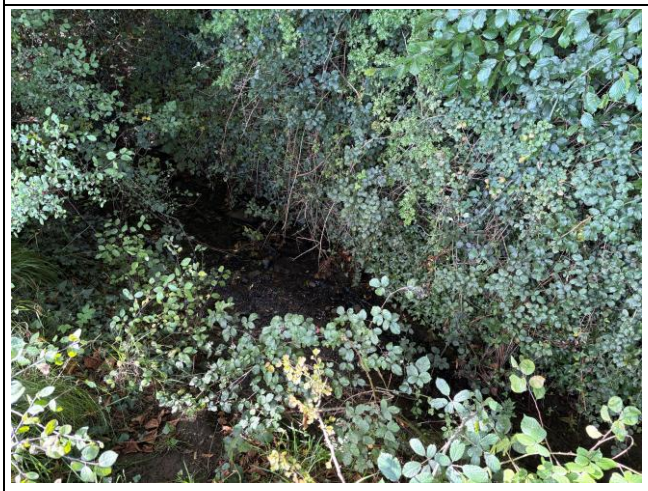


Figure 7 A narrow, incised channel along a hedge line along the left bank. A varied channel bed, with a riffle section.



Figure 8 Outlet from an approximately 600m diameter pipe culvert into a silt bedded channel section of slack flowing water. Flow increases as the channel narrows downstream.





Figure 9Section of narrow free flowing channel with gravel to sand bed sediment located under tree cover. An uncommon section within the parkland area.	Figure 10 A wider section of channel, likely intended to form a small pond area which has become entirely vegetated by amphibious, linear leaved emergent vegetation.
	
Figure 11 Example of decorative waterfall/weir feature (here 1m high) present at regular intervals in the lower sub-reaches of the park.	**Figure 12 Typical example section of the Fitzmaurice stream, choked with reed and amphibious emergent vegetation, obscuring the bed.**

Coolmine Stream

SG 02767 85257 - SG 03169 85396

Table 9 Hydromorphological overview of the characteristics of the Coolmine Stream within the Camac_020 WFD river water body

Baseline Condition	
Quality and Dynamics of Water Flow	The channel was dry at the time of survey. Consequently, assessment of this component cannot be made. Where the bed of the ditch did contain water, this formed a damp, area of bed rather than a pool or free flowing section. It should be noted that further downstream, a clear section at the base of the ditch-like channel suggested the channel receives flow at times.
River Continuity	Lateral connectivity was poor. The channel was incised. Bank heights range from 1m to 2m where the channel passes through a topographic high point towards the centre of the park and was embanked along both banks downslope to the east (downstream). Longitudinal connectivity was impacted by two notable culverts, each of approximately 4m in length.
River Depth and Width Variation	The channel depth was variable and corresponds with the surrounding topography, being higher in the centre of the park and lower to the east and west. River width was difficult to determine without observations of flow within the channel, however, based on observations of the channel alone, width is anticipated to be homogenous, ranging between 1.2m and 1.5m wide.
Structure and Substrate of Riverbed and Banks	The bed of the channel was visibly dry and appeared to be comprised of earth. Where a section of the channel was wet, the bed was difficult to see due to vegetation growth within the channel. If a sedimentary substrate is present, it is likely to consist of silt. River bank material was comprised of earth. Material could not be determined where culverted but would be artificial.
Structure of Riparian Zone	The riparian zone was dominated by a managed hedgerow comprised of several tree species and woody shrubs. Where the hedge was absent, mown grass extended to the water edge along both banks with several planted trees present along the left bank.

Photographs	
	
Figure 13 A dry channel section shaded by trees on both banks. Channel banks rise uphill to the east, in the direction of flow from Fitzmaurice Stream to the Camac River.	**Figure 14 Section of channel with open canopy resulting in vegetation choking channel. A silt bed was visible with areas of water also noted.**
	
Figure 15 Dry section of channel present where trees shade the channel, maintaining an open section. An over deep and incised channel section.	**Figure 16 End of channel where Coolmine Stream discharges into the Camac River. Channel section is overgrown with shrubs.**

River Camac

Reach 1

SG 03319 84984 - SG 03208 85134

Table 10 Hydromorphological overview of the characteristics of Reach 1 of the River Camac within the Camac_020 WFD river water body

Baseline Condition	
Quality and Dynamics of Water Flow	The river had a varied morphology resulting in diverse arrangement of flow types and velocities throughout the reach both laterally and longitudinally. Typically, flows formed either riffle, run or glide flow types with accordingly fast and slow flow velocities. Slacker flow areas permitted deposition of finer grained sediments comprising sand and fine gravel, where faster areas permitted clean gravel beds to form. Observations of scoured banks provide evidence for higher velocity

	erosive flow states. Furthermore, interactions with in-channel wood also promoted development of locally diverse flow conditions.
River Continuity	Lateral connectivity within the reach appeared to be maintained along the right bank, albeit with only a narrow area due to local, natural topographic constraints. Along the left bank, connectivity was limited due to much higher bank height resulting in an asymmetric pattern of lateral connectivity. Longitudinal connectivity within the short reach was unimpeded, however, at the upstream boundary of the reach a 2m high weir was noted which impacts longitudinal connectivity of flow and sediment into the reach. Whilst this did appear to have been bypassed by flows which had scoured a channel around the left wing wall, it is not anticipated to negate the effect of the weir.
River Depth and Width Variation	Channel geometry was variable, most notably around a small island that had formed around a tree. Typical channel dimensions would range between 2.5m and 3m wide and 0.05m to 0.1m deep. Around the island a 0.5m wide channel and a 1m wide channel had formed, both approximately 0.05m deep.
Structure and Substrate of Riverbed and Banks	The river bed was formed of mobile or semi-mobile fine gravel to coarse gravel sized sediment in the more morphologically varied reaches immediately downstream of the weir. Further downstream, and under the public access footbridge, the river bed was comprised of coarse gravel and cobble sized sediments that armoured the bed, characterised by a dark biofilm which covered sediment particles comprising the river bed. The river banks were generally comprised of a silty loam. However, small deposits were recorded along the river banks. Where they had been exposed by scour of the former depositional forms, they revealed a composition of sand, fine gravel and larger cobbles in the lower horizons of the deposited material.
Structure of Riparian Zone	The river banks were vegetated by deciduous trees of varying species and an understory of sparse woody shrubs and tall herbs. Beyond the bank face and bank top over the left bank, managed grasslands were present comprising the edge of Rathcoole Park. To the right bank, a tarmacked pedestrian pavement was present, beyond which the deciduous woodland continued leading to residential properties and, at the upper extent of the reach, large ponds.
Photographs	
	

Figure 17 Morphologically varied section of channel downstream of a 2m heigh stone weir. Bypass of this is present along the right bank (right of image)	Figure 18 Several metres downstream of Figure 16, showing morphologically diverse bed and channel geometry, comprised of coarse gravel to fine gravel bed material.
	
Figure 19 Meandering channel at southern extent of Rathcoole Park, with coarse gravel riffle present and point bar formed of varied sorted sediment, eroding at the toe.	**Figure 20 Erosion along earthen right bank of straight rifle section downstream of the footbridge from Rathcoole Park to the south.**

Reach 2

SG 03208 85134 - SG 03175 85474

Table 7 Hydromorphological overview of the characteristics of Reach 2 of the River Camac within the Camac_020 WFD river water body

Baseline Condition	
Quality and Dynamics of Water Flow	Flow was longitudinally variable but lacked the lateral variability present in the upstream reach. Flow types formed in sequence downstream, being either fast flowing turbulent runs or riffles or slack flowing glides or pools. Slacker flowing reaches promoted sedimentation, encouraging deposition of silt across the river bed, smothering or submerging coarser bed material present. Sections of bedrock were noted to protrude in the lower extents of the survey reach, resulting in a locally diverse arrangement of turbulent flow types and a varied bed morphology.
River Continuity	Longitudinal connectivity appeared to be good and broadly uninterrupted by modification, however, sections of the channel were choked by vegetation where the tree canopy was absent. This would likely impeded the flow of water and sediment, though not prevent downstream passage. Lateral connectivity was impacted by tall river banks along both sides, restricting lateral flow to a relatively narrow area in most flow states.
River Depth and Width Variation	Channel geometry was variable within the reach with wide sections (3m) and narrow sections (1.2m), though typical width was around 1.2m to 1.5m. The varied widths would be expected to permit varied flow depths in different flow states, though water depth observed was generally consistent between 0.05 and 0.2m.
Structure and Substrate of Riverbed and Banks	The river bank material along the left bank was consistently observed to be comprised of a sandy loam or earthen material. Where natural the right bank was also comprised of the same loamy or earth material but was interspersed with artificial bank material that had been installed to protect the bank, and the

	adjacent properties from erosion. Bedrock was noted towards the lower extent of the reach but only as occasional protrusions, impacting morphology locally.
Structure of Riparian Zone	The left bank was consistently vegetated by a mixture of deciduous trees, woody shrubs and tall herbs comprising the vegetated edge of Rathcoole Park and providing screening for the properties on the opposite side of the Camac River. The right bank vegetation was comparable, but with a greater number of trees forming a more consistent stretch of tree cover compared with the sporadic or individual trees present along the left bank.
Photographs	



Figure 21 Steep section of channel along Rathcoole Park with armoured cobble bed. A recently constructed outfall discharges into the Camac from the left bank.



Figure 22 Typical overgrown vegetation present along the left bank top obscuring the channel. The channel itself is typically overgrown by vegetation on the bank face and within the channel.



Figure 23 Shaded, free flowing section of the River Camac forming a pool or glide like flow type between riffles. An example of finer gravel and sand bed sediment.



Figure 24 Meanders present to the north of the Rathcoole Park site. Bedrock protruding from the coarse gravel bed, creating varied flows. Erosion recorded along opposite bank.

Crockshane

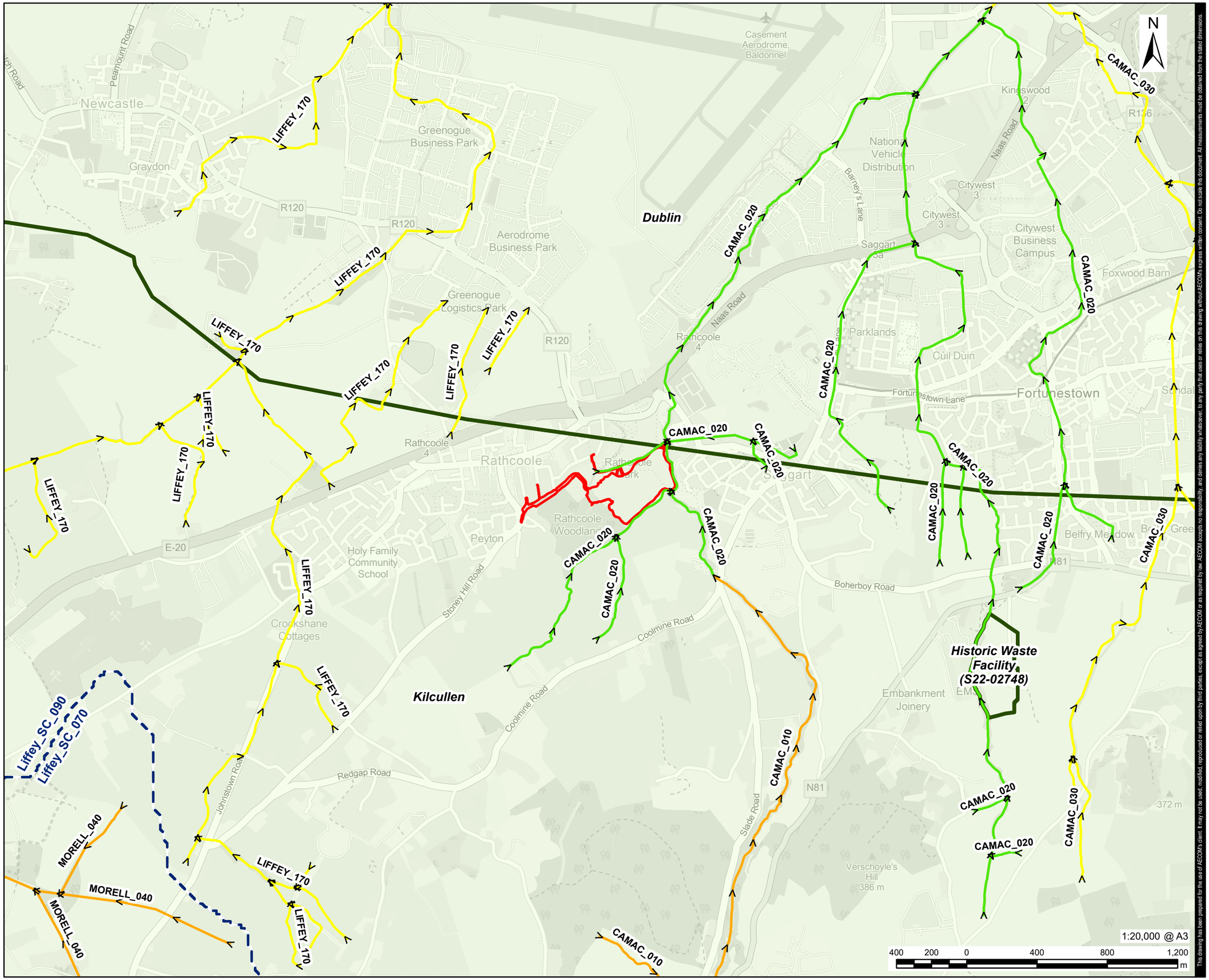
The Crockshane was surveyed 19th September 2025 during similar antecedent and weather conditions. An assessment of the watercourse is outlined below and has been combined with observations made of the Crockshane at the confluence of the Camac made during the survey otherwise documented in this technical note.

Table 12 Hydromorphological overview of the characteristics of Crockshane within the Camac_020 WFD river water body

Baseline Condition	
Quality and Dynamics of Water Flow	Flow conditions were generally slack flowing in what comprised an overly deep drainage channel. On approach to the River Camac, some evidence of flow was noted and formed a defined thalweg which corresponded with lateral sorting of bed material. At the confluence with the Camac (observed during survey in 2026) turbulent flow formed over a coarse gravel substrate.
River Continuity	Longitudinal connectivity appeared to be good and broadly uninterrupted by modification, though the present of large wood provided some impediment. Lateral connectivity was impacted by tall riverbanks along both sides, restricting lateral flow to a relatively narrow area in most flow states.
River Depth and Width Variation	The channel formed a 2m deep ditch with a narrow, 1.5m wide channel. As an artificial channel this remained consistent throughout.
Structure and Substrate of Riverbed and Banks	The river bed was typically comprised of silts, though some sand and fine gravels were also recorded along the course of the channel. At the outlet of the Crockshane to the River Camac, coarse gravels were recorded to comprise bed sediment, however, given the upstream characteristics of the Crockshane, these coarse gravels are likely to have been deposited by the Camac, rather than supplied by the Crockshane. The river banks were comprised of earth.
Structure of Riparian Zone	The riparian zone was vegetated by trees, woody shrubs and tall herbs. Deciduous trees provided an almost continuous, albeit narrow canopy for the channel. Beyond the narrow tree lining of the channel, both banks were vegetated by grassland.
Photographs	
	

Figure 25 Silty, narrow drainage channel with small wood obstructions	Figure 26 Sorting of sediment along a thalweg, evidencing varied substrate and evidence of flow
	
Figure 27 Crockshane channel entering from the left bank (opposite) with shallow turbulent flow over coarse bed sediment.	

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PROJECT

SDCC Rathcoole

CLIENT

South Dublin County Council

CONSULTANT

AECOM Ltd.
10th Floor, The Clarence West Building
2 Clarence Street West
Belfast, BT2 7GP, UK
Tel (028) 9060 7200
www.aecom.com

LEGEND

- Site Boundary
- Surface Water Catchment Boundary

Surface Water bodies (WFD Overall Status)

- Good
- Moderate
- Poor

Ground Water bodies (WFD Status)

- Good

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

60739527

FIGURE TITLE

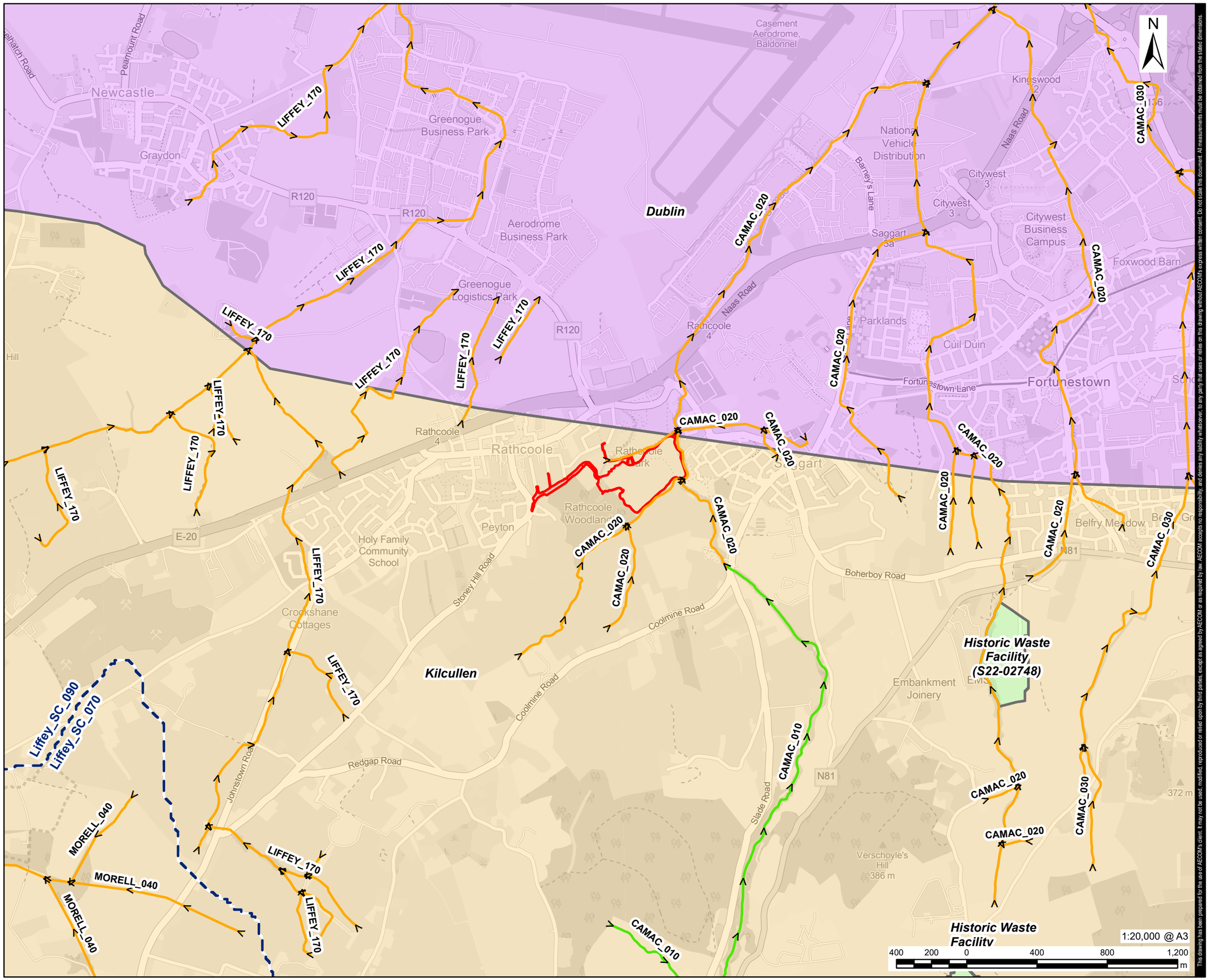
WFD Surface Water and WFD Groundwater bodies

FIGURE NUMBER

Figure 3-1

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South Dublin County Council

CONSULTANT

AECOM Ltd.
10th Floor, The Clarence West Building
2 Clarence Street West
Belfast, BT2 7GP, UK
Tel (028) 9060 7200
www.aecom.com

LEGEND

- Site Boundary
- Surface Water Catchment Boundary

Surface Water bodies (WFD Risk)

- At risk
- Not at risk

Ground Water bodies (WFD Risk)

- At risk
- Not at risk
- Review

NOTES

Sources: Map data © OpenStreetMap contributors, Microsoft, Esri Community Maps contributors, Map layer by Esri, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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FIGURE TITLE

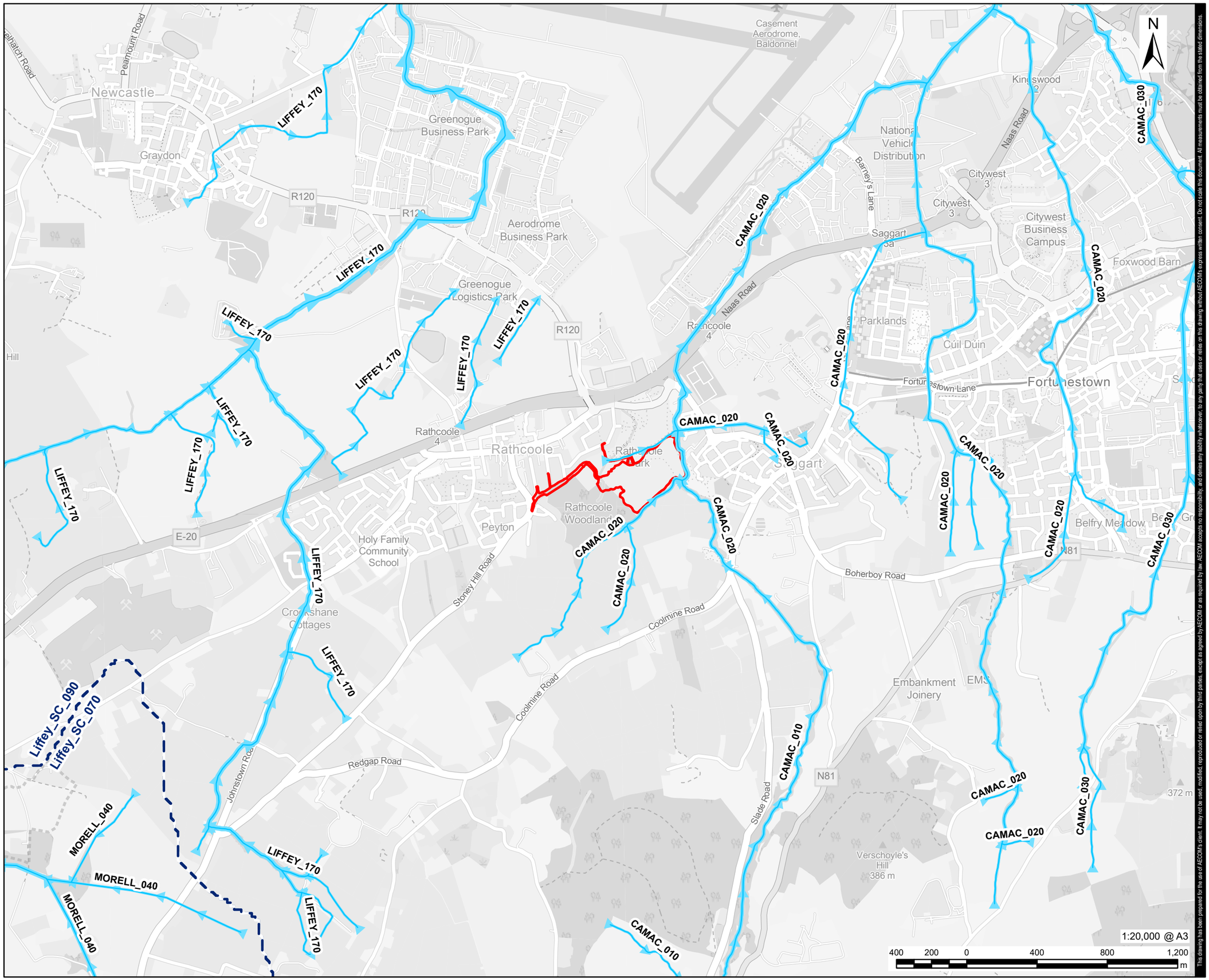
WFD Surface Water and Groundwater Risk

FIGURE NUMBER

Figure 3-2

Revision: Drawn: JB Checked: JM Approved: NW Date: 2026-10-07

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LEGEND

- Site Boundary
- 1km Study Area
- Surface Water Catchment Boundary
- Watercourse

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

60739527

FIGURE TITLE

EPA River Network

FIGURE NUMBER

Figure 3-3